Virginia Wildlife

JANUARY 1980
$1.00

CHUCK RIPPER
©79

Virginia Wildlife

VIRGINIA WILDLIFE (ISSN 0042 6792)
January, 1980, Volume XLI, No. 1

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources

COMMONWEALTH OF VIRGINIA
JOHN N. DALTON, GOVERNOR

Commission of Game and Inland Fisheries

COMMISSIONERS

J.D. Bowie, Chairman, *Bristol;* Frank F. Everest, Jr., *Alexandria;* Dolph Hays, *Arlington;* Allan A. Hoffman, M.D., *Danville;* James R. Knight, Jr., D.D.S., *Warsaw;* Walter J. Leveridge, *Virginia Beach;* Richard T. Spain, Jr., *Waverly;* Richard E. Watkins, *Richmond;* Ralph L. Weaver, *Waynesboro;* George L. Sheppard, Jr., M.D., *Winchester.*

ADMINISTRATIVE OFFICERS

James F. McInteer, Jr., *Executive Director;* Richard H. Cross, *Assistant Director;* John P. Randolph, *Deputy Assistant Director;* James Engle, *Deputy Assistant Director;* Jack W. Raybourne, *Chief, Game Division;* Harry L. Gillam, *Chief, Education Division;* Jack M. Hoffman, *Chief, Fish Division;* John H. McLaughlin, *Chief, Law Enforcement Division;* Larry Hart, *Chief, Lands and Engineering Division;* Sam J. Putt, *Chief, Administrative Services.*

Virginia Wildlife is published monthly in Richmond, Va. by the Commission of Game and Inland Fisheries, 4010 W. Broad St. All magazine subscriptions, changes of address and inquiries should be sent to PO Bx 11104, Richmond, Va. 23230. The editorial office gratefully receives for publication news items, articles, photographs and sketches of good quality which deal with Virginia's soil, water, forests and wildlife. The Commission assumes no responsibility for unsolicited manuscripts and illustrative material. Credit is given on material published. Permission to reprint text material is granted provided credit is given the Virginia Commission of Game and Inland Fisheries and *Virginia Wildlife,* but clearance should also be obtained from contributing free-lance writers, artists and photographers to reproduce their work.

SUBSCRIPTIONS: One year, $5, three years, $12.50. Make check or money order payable to Treasurer of Virginia and send to: Commission of Game and Inland Fisheries, P.O. Box 11104, Richmond, Virginia, 23230.

Observations, conclusions and opinions expressed in *Virginia Wildlife* are those of the authors and do not necessarily reflect those of the members or staff of the Commission of Game and Inland Fisheries.

Special Second Class Postage paid in Richmond, Va.

Features

4 QUAIL IN THE SNOW, by Charles D. Bays
There are Times when Snow is Not a Welcome Sight

6 WANTED: ALIVE!, by Donald W. Linzey
Much is Being Done to Save Virginia's Endangered Species

9 BEAVER BASICS, by Pat Cooley
Beavers Are Back in Virginia's Woodlands

12 WILDFIRE!, by Dennis Anderson
Fire is Still a Major Threat in our Forests

13 OF TRAPPERS AND SKINS, by Harold Skinner
Steeped in Nostalgia, the Fur Business Thrives

16 SHOULD YOU FERTILIZE YOUR FISH POND?, by Louis A. Helfrich and Larry A. Nielsen
Fertilizing Does More Harm Than Good In Your Pond

18 THE BEACH IN WINTER, by Brian Taber
Though Not For The Faint-Hearted, The Shore is Alive In The Winter

21 TIPS FOR ATTRACTIVE TROPHIES, by Stephanie S. Slahor
How To Best Preserve Your Catch

25 MISTY BLUE MOUNTAINS, by Barbara McEwan
The Peaks of Otter are One of the State's Biggest Attractions

27 WHAT IN THE WORLD IS A THUNDERPUMPER?, by Henry Fischer
The American Bittern is a Unique Bird in Many Ways

33 THE BAD GUY IN VIRGINIA'S FORESTS, by Dennis Anderson
White Pine Blister Rust is an Enemy of Our Trees

34 BIRD OF THE MONTH, by John W. Taylor
The Pine Grosbeak

Departments

3 Editorial/Letters
22 Personalities
23 Growing Up
24 It Appears to Me
29 Outdoor Notebook
32 On the Waterfront

Staff

HARRY L. GILLAM, *Editor*
MEL WHITE, *Associate Editor*
SANDRA COLEMAN, *Assistant Editor*
ROBIN SHARPE, *Art Director*
CARL "SPIKE" KNUTH, *Artist and Photographer*
F.N. SATTERLEE and J.N. KERRICK, *Staff Writers*
JO ANN AGEE, *Photo-type Composition*

COVER: Mink, by Chuck Ripper, Huntington, West Virginia

Letters

SUBSCRIPTION PROBLEMS

After I renewed my subscription to *Virginia Wildlife* I got a cover in the mail with *no* magazine in it telling me that my subscription had expired. What happened?

Christopher Walken
Richmond

You are correct, you had renewed and we apologize for the confusion. If you wait too long before sending in your check, this can happen. What occurred was that your name didn't make it into the renewal list in enough time to avoid receiving this mailing. If this happens in the future, you should receive your next month's issue of VIRGINIA WILDLIFE with no problem.—Asst. Editor

PRAISE FOR RESPECT

I would like some of your "I Report Wildlife Violations" stickers for my archery club. I think your program will be a big success. Hats off to those who protect our wildlife.

Kenneth W. Atkinson
Sherwood Archers
Roanoke

I certainly hope that your Operation RESPECT campaign brings excellent results. I have noticed by listening to my scanner that the police and game wardens have their hands full with spotlighting and poachers. They need all the assistance we can give them.

R.W. Pruden
Mechanicsville

We are delighted with the response that Operation RESPECT has received from the sportsmen of the Commonwealth. By displaying these bumper stickers and by reporting wildlife violations you are all letting the slob hunter know that his actions will no longer be tolerated by the sportsmen of the state.—Editor

ADVICE FOR SPELUNKERS

I enjoyed Gary R. Gaston's article on spelunking in your October issue, but feel I should issue one word of advice. If you see a big-eared bat in a cave, you should leave it immediately. The bat is extremely sensitive to human presence and its habitat is critical at this point. In order to insure the species survival, it must be left alone. Also, they should report the location of the cave to the Endangered Species Office of the U.S. Fish and Wildlife Service.

Noel M. Burkhead
Roanoke College

Editorial

PAYING THEIR WAY

The following is a combination of two resolutions, one passed by the Virginia Division of the Izaak Walton League of America, October 14 and the other passed by the Virginia Wildlife Federation, October 27, 1979. We think it expresses the feeling of most of Virginia's sportsmen.

Whereas, since the inception in 1916 of State wildlife and inland fisheries conservation and management programs in Virginia, the sportsmen of the State have been the sole source of funding of those programs through the purchase of hunting, fishing and trapping licenses; and

Whereas the hunters and fresh water anglers of Virginia do desire to continue to provide all necessary funds to support State wildlife and inland fish management programs, as a preferable alternative to funding the programs either in whole or in part from revenues derived from taxes of any sort levied upon the general public; and

Whereas continuing inflation of operating costs, and concomitant devaluation of revenue in terms of quality and quantity of services that can be provided, may be offset automatically by equally inflated general tax revenues, but are not so offset in the case of a fixed fee levied upon a relatively stable population of those sportsmen directly benefiting from the State's wildlife, inland fisheries, and boating safety programs;

Whereas, the increase in the sale of these licenses has not kept pace with the increase in the Commission's expenses; and

Whereas, it is desirable and necessary for the Commission to continue its present programs and to pay its personnel salaries comparable to similar positions in other states; and it is not possible for the Commission to do so without additional revenues; therefore, be it

Resolved that the General Assembly, be encouraged to enact legislation in 1980 adjusting hunting, fishing and trapping license fees, and related permit fees, and boat registration fees, in order to continue to provide adequate funding of the State's wildlife and inland fish management, and motorboat and water safety programs; and to insure that the basic funding source of these important programs remains, as it traditionally has been, the outdoor-oriented, sportsman-conservationist segment of the population (hunters, fishermen, trappers and recreational boaters) rather than the general public at large; and be it further

Resolved that a copy of this resolution be forwarded to the Governor, and to each member of the House of Delegates and the Senate of Virginia.

Sportsmen can be justly proud of their record of paying their own way. Few other segments of our society have met their obligations so willingly.—H.L.G.

Quail in the Snow

by Charles D. Bays

Snow is far from being the bird hunter's best friend.

As a new hunting season approaches, many of Virginia's upland bird hunters have no doubt already initiated the usual preparatory steps to help insure its success.

The favorite setter or pointer has been roaded or otherwise pre-conditioned to harder muscles and pads which have grown soft during the previous nine month layoff.

Those with pups or second year dogs may have taken the opportunity to staunch and tone him up by working the young dog on a few pharoah or pen raised quail. Too, the hunter may have attempted to sharpen his wing shooting skills with a few practice rounds or trap or skeet.

This preliminary work not only helps to insure the success of the upcoming season, but also serves to heighten the anticipation of its beginning. To a truly dedicated bird hunter this may be favorably compared to a youngster eagerly awaiting Christmas morning. Opening day of bird season is the dedicated hunter's Christmas; the rest of the season is the presents under the tree.

He has meticulously calculated the number of available hunting days by adding together the season's Saturdays, holidays, accrued vacation days and has possibly thrown in a few sick leave days (accountable to bird fever, known only to infect bird hunters).

This may come to a pretty hefty total, if only he can diplomatically schedule Aunt Bertha's visit after the season expires, and if only it doesn't snow.

To a bird hunter few things are more dreaded than the sight of a new fallen snow. When this occurs he is likely to become quite short of temper or walk around in a half-stupor. The hunter may seek temporary consolation by engaging in a one-sided conversation with his canine companion, at the conclusion of which the dog is left totally confused, no doubt wondering why he's not out hunting.

It is, of course, unlawful to hunt quail in Virginia when snow is predominant or covers the ground. And for the past several years Mother Nature has dealt a hard blow to the Old Dominion's hunters —and, no doubt, to the birds themselves.

During the 1976-77 season a harsh winter storm stole a precious month of available hunting time from many of Virginia's bird hunters. The next year was no better, the bulk of the snow falling on — appropriately — Friday the 13th of January, and in most counties doggedly hanging on the rest of the season.

Virginia's snow law on quail is a frequent topic of conversation among the Old Dominion's bird hunters and is also a controversial matter. Supporters of the law state that it is necessary to protect quail when snow and ice seal off most available sources of food. They further point out that the birds which frequent the edges of cleared roads would be more vulnerable to unscrupulous road hunters. Some feel strongly that not only is the law completely valid and justified, but that it would also be unsportsmanlike and they would find it personally objectionable to hunt quail that are having a sufficiently rough time just surviving the rigors of a winter storm.

Those opposed to the law point out that there is already an existing law which makes it unlawful to hunt from a public road. They further contend that it is difficult to successfully hunt quail in the snow, the hunter and dog being at the disadvantage.

While opinions vary on the snow law, the majority of bird hunters are in accord in one regard: no dedicated hunter would sacrifice the stability of the quail's carryover population of brood stock for a few extra days afield. The question is, then — at least in many hunters' minds — to what degree would allowing hunting in snow jeopardize next year's hatch, or simply put, would the extra bird harvested on snow days be too many?

Certainly this is a question with no realistically clear-cut answer; to a large degree it would depend upon the severity and longevity of the snow.

In an admittedly haphazard approach at trying to get some idea of winter kill of quail, I returned to a Bedford County farm shortly after the season's conclusion. I had hunted this particular farm four times during the 1977-78 season, the last time only a few days before the snow storm hit. On each of the four hunts my dogs found between six and eight coveys of birds, each covey averaging a dozen quail. As my dogs are more proficient at finding birds than I am at hitting them, there was an insignificant change in the quantity of quail left on the farm following my fourth and final hunt.

A few days after the season ended, and armed only with a camera, I followed two of my dogs over the same terrain we had covered on the four previous actual hunts with the following results: although the dogs hunted as diligently as ever they found two coveys of quail; one covey had perhaps a dozen birds, the second had three.

At the risk of redundancy, I again fully realize this was a shotgun approach at trying to prove a point one way or another, and it is entirely possible my findings are not at all conclusive. It's possible, although not likely, another party of hunters could have thinned down the quail (hunting pressure on the farm was slight). It's also possible the dogs could have missed finding many of the birds, but it is a rare day when Sam hunts by too many coveys and never makes bird.

Is the snow law a good law or an unnecessary one? Let's just hope Mother Nature is a little kinder to us this season. Let's also hope at least one of the three quail in the last covey was a hen.

WANTED:

ALIVE!

A grass-roots effort is underway to identify and save Virginia's endangered species.

by Donald W.

photo by Karl Maslowski

One hundred and forty-two species of Virginia plants and animals were recommended for endangered status at a Symposium of experts who gathered at VPI&SU in the spring of 1978. The Symposium was sponsored by the University Center for Environmental Studies and was attended by over 200 persons from 10 states and the District of Columbia. Participants included college and university biologists, museum curators, personnel from a wide range of state and federal agencies, graduate students and other concerned citizens.

The purpose of this Symposium was to provide a setting for experts on Virginia's flora and fauna to exchange ideas and reach a concensus on which organisms should be considered *Endangered* or *Threatened* on a statewide basis.

Work completed during the months preceding the actual Symposium included dividing Virginia's flora and fauna into nine categories. For each category a Committee Chairman was chosen and the chairman, in turn, selected well qualified persons as members of their committee.* These committees accomplished much of their work during the months preceding the Symposium.

The five categories used in this Symposium are defined as follows:

ENDANGERED

A plant or animal whose prospects for survival are in immediate jeopardy; in danger of extirpation and/or extinction throughout all or a significant portion of its range in Virginia. Also includes those plants and animals on, or being considered for inclusion on, the *U.S. List of Endangered Fauna* and *Threatened Plant Species of the United States*, as provided under the Endangered Species Act of 1973 (Public Law 93-205).

THREATENED

A plant or animal which is likely to become *Endangered* within the foreseeable future throughout all or a significant portion, but not yet considered *Endangered*. Also includes those plants and animals listed under the provisions of Public Law 93-205.

SPECIAL CONCERN

A plant or animal which should be continually monitored (a) because it exists in only one or a few small geographic areas and/or is rare (low population density) over a relatively broad range; (b) because its existence may become endangered due to the destruction, drastic modification, or severe curtailment of the habitat; (c) because certain characteristics or requirements make it especially vulnerable to specific pressures; or (d) because of other reasons identifiable by experienced researchers.

STATUS UNDETERMINED

A plant or animal that has been suggested as possibly *Threatened* or *Endangered* but about which there is not enough data to accurately determine its status.

RECENTLY EXTINCT OR EXTIRPATED

A plant or animal which recently occurred in Virginia, but which no longer exists in the state as determined by historical documents and/or knowledge of committee members.

Among the *Endangered* plants are six ferns: Long's red lily, nodding trillium, queen lady's Slipper, round leaved catchfly, Virginia round-leaf birch, and the fringed gentian. Most of the 58 *Endangered* mollusc species occur in the headwaters of Tennessee river system including portions of the Clinch, Powell and Holston River drainages. *Endangered* subterranean freshwater planarians are known from only one spring in Fairfax County and a cave in Rockbridge County.

The importance of Chesapeake Bay and its eelgrass communities is reflected in the discussion of the marine invertebrates. The *Endangered* species include several sea anemones, ribbon worms, polychaetes, Willcox's sea hare, the Cayenne keyhole limpet, bay scallop and subovate soft clam.

Two freshwater fishes — the spotfin chub and the sharphead darter — and one diadromous species — the shortnose sturgeon — were classified as *Endangered*. The Amphibian and Reptile Committee concluded that only the five marine turtles — loggerhead, green, leatherback, hawksbill and ridley — merited classification as *Endangered* species in Virginia.

The three *Endangered* birds are the southern bald eagle, peregrine falcon and red-cockaded woodpecker. *Endangered* mammals include the water shrew, three bats, the snowshoe hare, fox squirrel, northern flying squirrel, fisher, river otter and mountain lion.

The designation of a Committee on Geographic Areas of Special Concern reflected the philosophy that the ultimate means of preserving our biota lies in the protection of habitats. The task of this committee, which was composed of the chairmen of the other committees, was to identify areas within the state that merit special consideration in order to protect those forms listed as *Endangered, Threatened,* or *Of Special Concern*. Drawing upon the results of the other committees, it was concluded that two regions hold the majority of species included on the Virginia list — the western highlands and the coastal areas. Habitats discussed in relation to their characteristic species include mountaintop islands, cave ecosystems, shale barrens, barrier islands, river systems, coastal wetlands, eelgrass communities and wooded swamps. Specific geographic areas exemplifying these habitat types are singled out for special mention.

It was the intention from the start to make the Proceedings of this Symposium the best and most informative that any state has yet published. The pursuit of this goal has required over a year of intensive preparation. All of the *Endangered* and *Threatened* species and most of the species of *Special Concern* are represented by complete accounts giving their taxonomic status, description, present range, distribution in Virginia, habitat and mode of life, reproduction, number in captivity, status and protective measures proposed. Range maps are included for most of the *Endangered* and *Threatened* species. A number of photographs and drawings are also included. In addition, each Chairman has written an Introduction ranging from one to 15 pages explaining the reasoning behind their committee's decisions and the factors affecting their populations.

The Proceedings are now in press with an anticipated publication date of late January, 1980.. The Volume will comprise approximately 600 pages and will cost approximately $12.00. *Virginia Wildlife* will carry a notice alerting readers to the publication of this volume as well as giving its exact cost and the address where copies may be obtained.

The information contained in these Proceedings will prove extremely valuable for all local, state and federal planning and land-use agencies such as the Highway Department, Soil Conservation Service, Corps of Engineers, and many others. It is also being eagerly awaited by a large number of consulting agencies in Virginia and throughout the United States.

It is hoped that the publication of these Proceedings will inspire efforts to reveal further information concerning the ranges and life histories of the many forms contained therein. This type of information is especially needed for the 252 species clasified as *Status Undertermined*. Research biologists as well as graduate students looking for worthwhile and meaningful research should direct their special attention to these species.

*The committees and their chairmen were: Vascular Plants — Dr. Duncan Porter, VPI&SU; Freshwater and Terrestrial Molluscus —Dr. David Stansbery, Ohio State University; Freshwater Terrestrial Arthropods — Dr. Paul Opler, Office of Endangered Species; Marine Invertebrates — Dr. Marvin Wass, Virginia Institute of Marine Sciences; Fishes — Dr. Robert Jenkins, Roanoke College; Amphihians and Reptiles — Mr. Frank Tobey, Leesburg, Virginia; Birds — Dr. Mitchell Byrd, College of William and Mary; Mammals — Dr. Charles Handley, Jr., U.S. National Museum; and Geographic Areas of Special Concern — Mrs. Alicia Linzey, VPI&SU.

Beaver's sharp and powerful teeth can easily cut through thick trees.

Beaver Basics

Brought back from virtual extinction, beavers are now frequently a pest.

by Pat Cooley

Last autumn, while exploring a sunlit, golden forest in Virginia, my attention was drawn to a gently flowing stream that appeared somewhat low. This was puzzling as earlier the area had received nine flooding inches of rain. I traveled along the dwindling stream in search of the missing water. I approached a winding dam controlling the stream's water and bridging the sides of the ravine containing the stream, thus creating a picturesque pond. The dam was a masterpiece, constructed with natural building materials, sticks, leaves and mud. I knew that beavers were again plentiful in Virginia.

Due to the lack of protection, beavers were extinct in Virginia by 1911. In the 1930's, approximately fifteen beavers were acquired from the northern states and released in the Augusta County area. The beavers thrived, making nature's engineers a recognized resident in Virginia today. However, overpopulation of the beaver is unlikely since if overpopulation threatens the food supply, the female may refuse to mate or, somehow, restrain the amount of eggs fertilized.

The bulky beaver is one of the world's largest rodents. In primeval times the forever-growing beaver grew larger than today's black bear. Today, there are variations in the size of adult beavers ranging from thirty to one hundred pounds, and measuring thirty to fifty inches in length. The variation exists because the beaver is the only mammal that keeps growing until death.

This stout gnawer, like other rodents, has four large curved incisor teeth, yellow-orange in color, which also constantly grow. By chiseling down trees, sometimes a foot or two in diameter, the beaver keeps his teeth under control. He may fell several small trees in a night's work.

A superb swimmer, the beaver has five toes on each foot. The hind feet are webbed and five inches in width and kick alternately up and down, propelling the beaver's dark body through the water. When swimming above the water, the quiet beaver creates a series of smooth, large waves in the shape of a V extending backwards from his body. He will also float motionless in the water to camouflage as a log.

The famous, flat beaver tail guides him through the water, acting as a rudder. The tail is also used for balance and as an alarm. When agitated, a slap of the scaly tail on the water will echo through the beaver's territory like a blast from a shotgun. Normally, beavers will continue their work, with only a slight pause, after they have been alarmed.

The other two limbs of the beaver, the short front legs, are clawed for handling sticks and digging mud to construct dams and lodges. When swimming, the tiny front legs or arms are held close to the chest. When eating, a twig or chunk of wood is held in the beaver's forepaws and rotated while the beaver nibbles.

The beaver is nocturnal and is industrious in the evening and morning twilight, occasionally making appearances during daylight. The clock-punching beaver usually emerges from his lodge around six thirty in the evening.

Two protective flaps of skin are located behind the beaver's large teeth to prevent wood particles and water from entering his throat while working under water. Closing his nose valves automatically, a beaver can stay submerged for fifteen minutes and swim submerged for one half a mile.

The dark brown beaver (reddish-brown above water) appears sleek when submerged, and long guard hairs give him the appearance of being bristly on shore. Under these guard hairs lies the soft, durable fur used in coats, hats and other items. Two oil glands are located under the beaver's tail which he uses to waterproof his sleek coat. Plenty of fat under the beaver's thick fur will keep him warm in the winter. The perineal gland secretes castoreum, and today an acid in castoreum, salicylic acid, is used in aspirin. Castoreum is also used as a fixative in perfumes.

Beavers are affectionate creatures creating a strong, loving family unit. When a family of beavers emerge in the evening, the adult male appears first, checking the safety of the pond. He returns to his lodge and passes the word of approval to his family. Soon both adult beavers emerge diving and frolicking in the water, emitting humming sounds with a variety of pitches.

Beavers are monogamous, mating for life. Birth is given three and one half months after the winter breeding season, with two to eight kits born in May or June. Sitting upright to nurse, the female can only feed four kits. Each weighs a pound and are born with beady eyes wide open, lush brown fur and teeth ready for nibbling in two weeks. Walking and swimming begins soon. At six weeks of age the kits weigh seven to eight pounds, and at one year they are half grown.

When two years of age, the young beaver is outcast from the family unit and territory. At 2½, the outcast will mate and form a family or colony of his own. A colony consists of an adult male and female, one year olds and the new born, averaging five beavers per colony.

Observing these unique creatures for a twelve hour period one day, I realized how dependent wildlife is on the beaver's reservoir. Colorful wood ducks delight in the pond's privacy; muskrats thrive on thick vegetation created by the runoff; kingfishers, herons, otters and raccoons feast on fish and frogs; pileated, downy, hairy and red-headed woodpeckers drill water logged, dead trees for a meal; painted turtles crawl onto a floating log to catch a ray of sun; and a white-tail deer sips the pond's cool water.

Man and the river otter are the beaver's enemies

in Virginia. Man traps the beaver, and the carnivorous otter will devour the beaver's offspring.

When a colony of industrious beavers invades a stream, their concerns are to create a pond deep enough to escape their predators, to keep the pond's water from freezing solid, to store winter food supplies and to keep all lodge entrances under water. Therefore, the adult beavers design and construct a dam. The tight, sturdy dam is not thrown together, but is engineered to perfection. First of all, beavers have a preference for a habitat of gently flowing streams housed in a rolling terrain. Once a site is picked, the lumberjack of the forest begins. Trees and saplings are felled for building supplies. Only prime trees are selected, including sweet gum, poplar, willow, birch, maple, aspen, alder and sometimes oak, holly, pine and even roots. These trees are chiseled in a circular motion, approximately a foot above the ground, leaving pointed sticks and stumps, protruding from the pond and its banks. The determined beaver usually works

Brought back from virtual extinction, beavers are now frequently a pest.

alone, and he cannot fell a tree in a preferred location, as some may believe. When the beaver is alerted by the crackling of timber, he will flee to safety. Once the tree is down, more hard work is in store. The tree is gnawed into manageable two to six foot lengths and hauled to the dam site. Being awkward and slow on land, the beaver designs cleared, smooth logging trails sloping toward the pond to drag his lumber down. To make work still easier, this ingenious rodent digs canals from the pond to favorable lumbering sites creating passageways to float his supplies along. The gnawed sticks are placed lengthwise on the downstream side, with longer sticks forming the base. Twigs, leaves and mud are conveyed with the beaver's forepaws and chinked between each stick. This process continues until the desired length is obtained. Beaver dams range in length from three feet to the longest dam on record in Montana, extending 2140 feet. Dams can be straight or wind towards the downstream side.

Beaver dams cause trouble when they block natural water flow.

The beaver will maintain his property and mend a break within twenty four hours of breakage. He will then cover his repairs with mud. These constant repairs keep dams from washing away.

The next piece of architecture the beaver designs is the conical lodge. The lodge is built to last, and it may be in continuous use for more than thirty years. This main lodge is in the shape of a cone and is often the birthplace of the beaver's young. Some beavers create dens by digging into stream banks and hollowing out under an old log or stump. These are called bank holes, which can extend for forty feet or more and may be used by older beavers, or as emergency tunnels for an escape to land from a frozen pond. The height of the average lodge is six to eight feet above the water line, and it measures six to twelve feet in diameter at the water line. The inside chamber is small in comparison, averaging twelve to twenty inches in height and eight feet across. The cozy area has a bed of twigs and leaves keeping the beaver warm in the winter. All entrances for lodges and bank holes are below the water line to insure protection against predators. If the water level drops below these openings, the beavers will move to a bank hole with its entrance under water.

The beaver must preserve a food supply to last his family throughout the winter as he does not hibernate. The Indians used to judge how severe a winter would be by the size of the beaver's winter food storage, called a magazine, gathered during the fall.

At the first sign of spring-warm breezes, peepers singing and new growths budding — the beavers pass-up their stale food supply to sample every fresh tree in sight.

A still, humid evening, mosquitoes whining and leafy blockades of vegetation, introduces summer, the beavers now enjoying green, crisp plant life. At times, they travel a mile over land for a certain treat, such as corn, beans or an apple tree.

The beaver surpasses all members of the animal kingdom in his engineering feats, more beneficial to man than harmful. The architectural masterpiece helps preserve the level of stream and ground water and sustain essential water supplies for wildlife and nothing is more captivating than to watch these dauntless conservationists at work.

WILDFIRE!

by Dennis Anderson

Prevention is the key to woodland protection from the fire menace.

"Mr. Anderson, this is the Division of Forestry at Abingdon. Harold Jerrell has a fire at Rock Lick and wants to know if you can get a group of boys and meet him there?"

That's the way it usually starts. What I'm talking about, if you haven't already guessed, is the Virginia Division of Forestry and their increasingly difficult job of controlling and suppressing forest fires.

Each year hundreds of acres of forest land go up in smoke due mainly to human carelessness. However, forest land is not the only thing destroyed. Fires kill young trees as their bark has not developed enough to withstand intense heat. Also in really hot fires older trees which have characteristically thick bark are usually wounded and sometimes die. I'm sure you've noticed fire wounds on trees in the form of a rotten or hollow section which will eventually kill the tree.

Trees are not the only ones which suffer. All the ground cover and organic matter are burned away, too. This may seem of little significance at first, but let's see what's lost here. Without deep organic matter many of the acorns and nuts (mainly of hardwood species) can't germinate setting back forest reproduction several years. Ground cover and organic matter also catch, absorb, and store water for vegetative use. Without this not only is there no storage but erosion takes place washing away valuable nutrients and topsoil.

These losses are nothing compared to what happens with wildlife. This, too, is a complex loss, but suffice it to say that dens, nests, mast, food and even lives are all sacrificed to the menacing wildfire. This leaves the outdoorsmen in a bind not only by running out or killing the exsisting wildlife but destroying those things which are needed for survival. namely food and shelter.

As mentioned before, most forest fires are the result of man, either accidentally or intentionally. The Virginia Division of Forestry is directly responsible for handling forest fires from the very beginning, to putting them out, and prosecuting the offenders. However, their job is becoming more and more difficult as the number of fires increase and the funds for the Division are held constant or cut.

The Division of Forestry has been under-staffed for several years due to available funds and job freezes. This may produce serious problems in the near future. So when the Chief Warden of a county has several fires going at one time he usually gets the help of a local forest warden. These men work when needed and are trained in the techniques of fire control. When called they make a quick call or two and alert their crew (usually high school boys). These boys have also been trained in the use of fire rakes and various tools. This takes place through the Keep Virginia Green program in Agriculture classes. The boys get their parents to sign an approval card, and then they are ready. Occasionally they are called out of school (much to their delight) to fight and also evenings and weekends. At present the wage for this work is $2.30 per hour, and they earn it. Sometimes boys will stay out 24 to 36 hours straight during extreme dry spells.

The weather plays a large role in fire season. Usually, there are two hazardous times, mid-fall and early spring. However, this all depends on the weather. These two times are peak because the leaves are on the ground, most green foliage is absent and people are burning.

The penalties are strict, allowing fines and prison sentences in severe cases and liability for the costs of fighting the fire in other cases. Again, though, with the under-staffed Division and the time consuming court process, few convictions are made.

Sportsmen need to help and cooperate with fire fighting personnel. Fire is deadly to habitat and, thus, wildlife itself. It benefits us all to take fire seriously.

Of Trappers & Skins

The fur business is alive and well.

by Harold Skinner

I stepped into the small, warm shop and was immediately fascinated by an atmosphere that, except for a few easily overlooked modern embellishments, could have been the atmosphere of a place and time long ago. The faint odor of smoky musk that filled the room was not at all unpleasant. Two seasoned men in equally seasoned outdoor garb nodded politely from their corner when our eyes met. They had been admiring a large coyote fur which hung on the wall between them. A few traps and several fur stretching frames dangled from nails higher up the wall.

I finally croaked something about having heard that I could sell my raccoon furs at the shop to a Mr. John Melzer. Before either of the two men could utter a response a voice boomed from the back room.

"I'm Melzer," it announced. "Hold on. . .I'll be out in just a second!"

Instantly a tall, sixtyish man emerged from the room. His glasses failed to hide a pair of twinkling eyes, and he seemed to be holding back a hearty smile with little success.

"O.K. now, let's see what you've brought me," he said while peering down at my armload of skins.

I dumped the furs on the countertop and held my breath as he quickly and thoroughly graded each one. My spirits bounced hard on the concrete floor when he announced that I had prepared the pelts incorrectly.

"You have to case skin these rascals," he explained. "Just make a cut across the feet and the critter's privates, and then pull the pelt off like a sock. Then," he elaborated, "you stretch it over an ironing board-shaped form of the correct size. 'Course you can bring me the fresh, unskinned animal for the same price. . .I have to do the skinning and fleshing myself, but lots of folks around here buy up the meat. . .don't care for it myself though."

Since I had stretched my furs flat and square, I assumed that they were worthless. Melzer must have sensed my dismay, for he immediately offered to buy them at a slightly lower price.

"I don't know how much I can get for these," he mused, "but I'll go ahead and buy them since they're already scraped good and dry. Just be sure to case skin them from now on!"

As he prepared my check I shuffled over to the doorway of his workroom. A peek inside revealed a fascinating array of furs drying on wire stretching forms that hung from racks along the walls. About forty soft, glistening gray fox and red fox pelts adorned the first few racks. The other racks, which extended almost back to the glowing woodstove in the rear of the room, were reserved for hundreds of muskrat skins. An equally astounding number of raccoon furs drew my attention to the racks on the opposite wall.

"Go on in if you'd like," said Melzer as he casually handed me my check and receipt. "You should have seen this room yesterday, before my buyer almost cleaned me out. I had barely enough working space in here!"

I tried to imagine that many furs at one time, but I had not yet recovered from the sight of the "small" collection before me. Some quick mental math revealed a few impressive figures: forty fox pelts at a conservative price of twenty-five dollars each is one thousand dollars worth of fur; two hundred muskrat pelts with an average value of about five dollars each are worth another thousand; finally, at about ten dollars apiece, one hundred raccoon furs tally yet another thousand dollars. These furs, worth about three thousand dollars, had been collected in just a few working days by Melzer!

"That sounds like a lot of money," remarked Melzer," and it is, but you must remember that I buy all of these furs from trappers and smaller buyers and then try to make my profit when I sell to the bigger buyers. I am doing very well if I can make five to fifteen percent profit on the dollar, but sometimes I actually lose money. It all depends on how fur prices have fluctuated between the buying and selling times. Trapping is hard work, so I always try to pay trappers top dollar for their furs. Sometimes fur value will drop unexpectedly, and I'll end

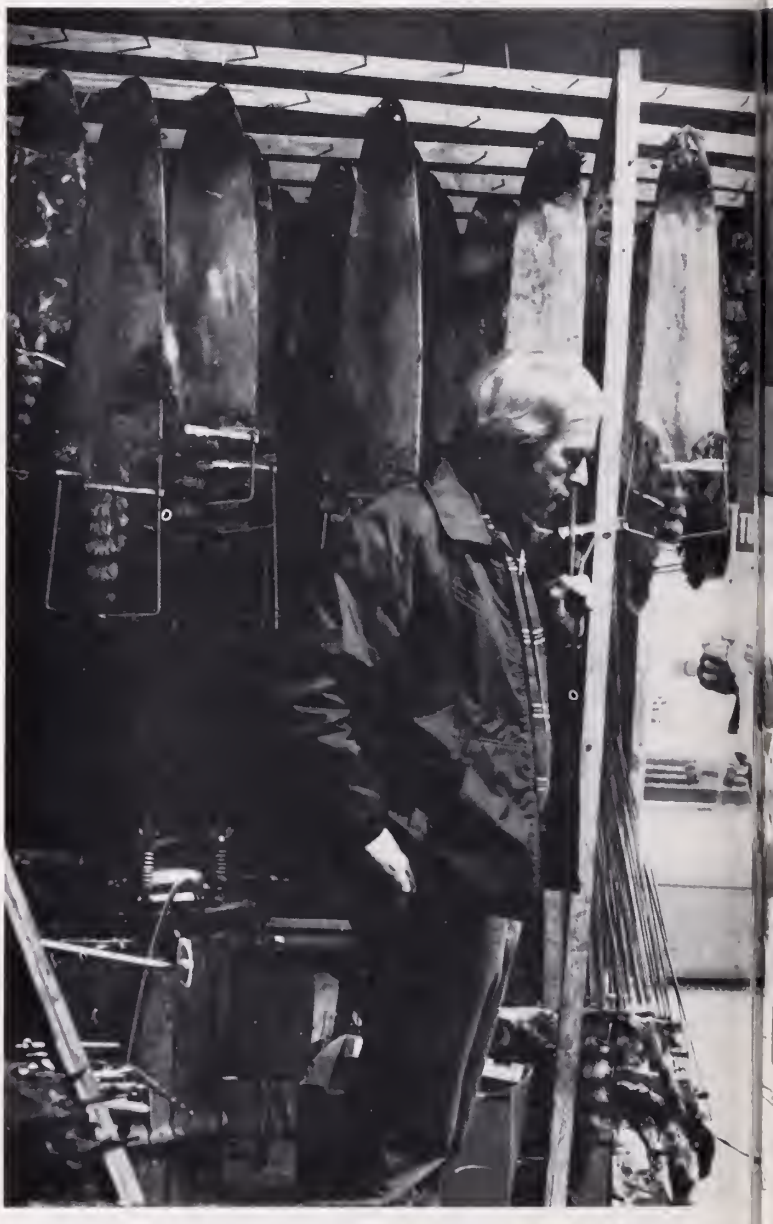
The trapping and selling of furs is rooted in our country's pioneer past. The tradition continues even today.

up selling a mess of pelts for less than they cost me. Also, there are a few shifty fur buyers that will cheat you if they can. I received three bad checks from the same man last year. They were all for large sums, and I wasted a lot of time and money trying to get them straight. You can bet I'll never deal with him again."

Mr. Melzer, however, is not often cheated; he has been a full-time fur buyer for seven years and dabbled in the business part-time long before that.

"I began buying muskrat furs years ago when I discovered that I could get up to $3.75 each for them from the big buyers when local buyers were only paying $1.25. Most of my furs came from young local school boys at that time. Each year I handled more and more muskrat pelts until I finally decided to work at it full-time during the winter months. I began dealing also with raccoon, fox, and other furbearers.

Many residents with seasonal jobs in our state depend upon trapping for their major income during the cold months. Melzer, for instance, trapped for many years during the months when commercial crabbing, his former summertime occupation, was at a standstill. Farmers often trap the plentiful furbearers that abound on agricultural lands; in addition to supplementing their winter incomes, they are also controlling summer crop damages by thinning the ranks of muskrats, raccoons, and other crop-eaters. Small traplines are tended daily by any rural men and women who have regular jobs and wish to enjoy outdoor activity and earn extra cash in their spare time. And finally, nobody knows how many industrious youngsters have added to their savings for a new fishing rod or bicycle by trapping a local marsh or cornfield. During the 1976-77 trapping season in Virginia 145,177 muskrats, our most common furbearer, were purchased from trappers at the cost of approximately $725,000.



Virginians also earned about $925,000 from the sale of raccoon, red and gray fox, and opossum furs, which fall next in line as those most frequently trapped. Without even considering the valuable, but not as frequently sought-after furbearers such as mink, otter, beaver, or bobcat, Virginians earned in excess of one and one-half million dollars by fur trapping. This also does not account for the great volume of food crops saved from pest damage.

"I really do think that trapping and the fur business has a future," remarked Melzer. The products that are manufactured from processed furs are luxury items for the most part. Despite inflation and hard times, it seems like lots of folks have even more money to spend on luxuries. . .and as long as they do, the fur business will continue. Aside from my obvious interest in the whole affair, I do hope it continues. A new road has recently been cut through a woodlot near here where trapping is not permitted, and every week when I travel it there are several more dead furbearers decaying along the roadside. It's a real pity that someone can't profit from that surplus. The animals are a hazard to nighttime motorists, and the adjacent farms are having fits over losses of crops and poultry. If the fur business ends, a very honest and healthy way to make extra money will no longer be available to a lot of folks who depend on it. I would especially regret the experience that many youngsters would be denied. I began trapping myself, in a three acre marsh near my home when I was only six years old. When I was a senior in high school I had saved enough fur money to buy a brand new 1931 Model-A Ford for $635.00. That car," beamed Melzer, "make me about the richest boy in Warwick County, but it was earned through good, hard, honest labor — every bit of it was outdoors on crisp winter mornings."

I pocketed my check and receipt as we both walked towards the front door of the shop. As I prepared to leave Melzer addressed me with one final word of wisdom.

"One thing upsets me about some trappers today. Many of them fail to realize that they must leave a healthy population of furbearers in a area for seed stock. They trap out a marsh — then complain of no catches! You remember that — don't trap yourself out of business."

I thanked Mr. Melzer, told him that I would certainly remember his good advice, and then stepped back out into the crisp December morning.

Should Fish Ponds be Fertilized?

The low-down on this should surprise you.

by Louis A. Helfrich and Larry A. Nielsen

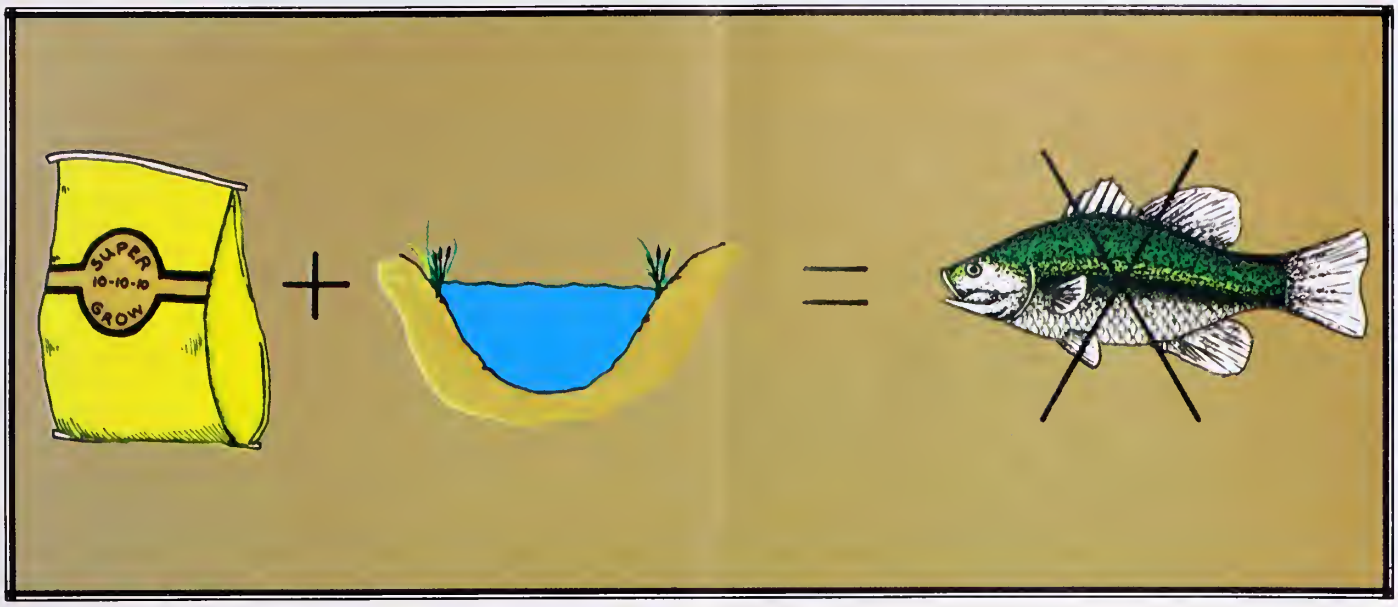
Greener lawns, healthier house plants, and better yields from gardens and farms, all occur when we fertilize. Dairy and beef production is higher, too, because the benefit of fertilizing pastures is passed on from the plants to the livestock. Can you expect similar benefits of increased fish production by adding fertilizer to farm ponds? Probably not.

In theory, adding fertilizer directly into pond waters does the following: (1) it stimulates the growth of microscopic water plants (phytoplankton), (2) this promotes the growth of small aquatic invertebrates (zooplankton and insects) that feed on phytoplankton and, (3) this improves the growth of sportfish which feed on the invertebrates. In practice, however, this idealized "biological chain reaction" of fertilizer to phytoplankton to insects to fish seldom works. Remember that fertilization of soils is only one of many things that farmers do to enhance crops. In addition to fertilization, we also protect cultivated land from nuisance weeds, destructive insects and other pests. To insure maximum yields, these systems are intensively managed, but fish ponds are not. In the absence of intensive management, fertilization of fish ponds is not usually a good idea.

Some of the major objections to the use of fertilizers in fish ponds are: (1) instead of promoting the growth of desirable plant life (phytoplankton), the added fertilizer is much more likely to stimulate the growth of nuisance waterweeds and filamentous algae that are not used as food by insects or fish; (2) the addition of fertilizer is usually unnecessary and quite expensive; (3) most pond owners, even when properly instructed, apply fertilizers in a haphazard manner and; (4) the results are unpredictable, frequently undersirable and, at times, dangerous to aquatic life. Thus, fertilizing a fish pond frequently creates more problems than it does pounds of sportfish.

Most farm ponds are naturally fertile. Even in the southeastern United States where pond waters are generally considered nutrient-poor, recent studies have shown that open-pasture ponds receive adequate amounts of nutrients through runoff to support good sportfish populations. Most studies suggest that fertilization rates should be greatly reduced or better yet, omitted entirely. The need for fertilizing a pond should be established by tests of soil and water fertility, rather than the casual assumption that all fish ponds need to be fertilized.

Haphazard or excessive fertilization of pond waters encourages nuisance growths of algae and water weeds that seriously interfere with the use and enjoyment of recreational ponds. In overfertilized ponds, dense growths of waterweeds can restrict swimming, boating, fishing and other water sports. Moreover, dead and dying waterweeds impart unpleasant taste to sportfish, emit offensive odors, reduce water clarity, and clog irrigation and livestock watering systems. Each year we receive hundreds of requests for helping in controlling waterweed problems in "over-fertilized ponds."



Fertilization of farm ponds also increases the risks of "summerkill" or "winterkill" of sportfish. During extended periods of calm, cloudy weather or snow-covered ice, decomposing weeds may consume all of the available dissolved oxygen, causing fish to suffocate. Because sportfish are the most sensitive to lowered oxygen levels, they will be affected before undersirable species such as carp. Dense weedbeds that restrict water movement and reduce aeration result in warmer water and further reduce oxygen supplies in the pond waters. Fish stressed by these conditions are more susceptible to disease and parasite infections.

Probably the biggest single myth about fish ponds is that small fish are the result of "unproductive" pond waters. Fisheries managers know that the sizes of fish in a pond are determined by the ratio of predatory fish to prey fish ---what is called "balance." Good growth of sportfish depends on the presence of large predators which reduce the abundance of small fish, leaving more food for the survivors. Without predators, fertilization will only produce more small fish competing with one another for food, causing them to never grow to a desirable size for fishing and eating. To make matters worse, the weedbeds produced by fertilization provide refuge for small fish so that fish like largemouth bass cannot prey effectively. Thus, neither the small prey fish or large predatory fish will grow well in weedy ponds.

In the past, popular articles on fish pond fertilization have tended to oversimplify the proper procedures, overlook the necessary costs involved, misrepresent the results to be expected, and neglect to discuss the problems created by over-fertilization. In reality, a successful fertilization program is likely to be much more complicated than pond owners imagine. Depending on the water quality of the individual pond, up to 10 applications may be required each year for a period of 1 to 5 years. Both the rates and the timing of the treatments are strongly influenced by local environmental conditions and will vary considerably between seasons and through the years depending on the physical factors (surface area, depth, temperature, light, water charity, rainfall), chemical factors (ph, dissolved oxygen, hardness, alkalinity, nutrient concentrations), and biological factors (kinds and amounts of algae, rooted weeds, fish and other aquatic life forms). Because each pond is a unique complex ecosystem, the results of fertilization are largely unpredictable even under the best circumstances. Claims that pond owners can cheaply produce up to 10 times as many sportfish by simply adding a bit of fertilizer are completely misleading.

The potential benefits of fish pond fertilization have been enthusiastically over-rated, while the costs, complexities, and real dangers are often suppressed in the popular literature. Our best advice is to keep fertilizers on agricultural lands and out of pond waters.

The Beach in Winter

by Brian Taber

As cold weather approaches, the familiar sounds and activities of Virginia's beaches die down to leave only the sand and chilly gray waves. But much goes on in the beach environment, so that for those who take the time to venture out, the rewards are many. Both the Chesapeake and Atlantic beaches are alive with wildlife in winter and the landscapes can take on a wholly different appearance, making a walk along these shores an altogether novel experience. The larger rivers in Virginia also have some beach habitat worthy of winter exploration.

The first thing to consider is: how brave are you? On certain sunny, even balmy winter days, there is no need for excessive clothing or special provisions. However, Virginia does have those cold streaks when the temperatures are well below freezing and the wind off the water can seemingly freeze the flesh upon contact. The humidity is generally high also and the unprotected hiker will find no exhilaration whatsoever in a beach junket. Preparation, then, is the answer. A knapsack can hold extra clothing if needed, but warm undergarments, a windbreaker of some kind, warm shoes, and a determined expression on the face are the only necessities.

There is virtually no competition for the beachcomber and treasures are everywhere. There are washed up bones, shark's teeth, discarded skate and mollusk egg cases, sponges, plants, rocks, driftwood, pieces of wreckage, sand dollars, conches, and a world of shells both whole and crushed. This is also a popular time for those with metal detectors

The shore is far from dead in the cold months.

Wind makes unique patterns in the sand. (left) Turtles are a rare sight year-round at the beach. (below)

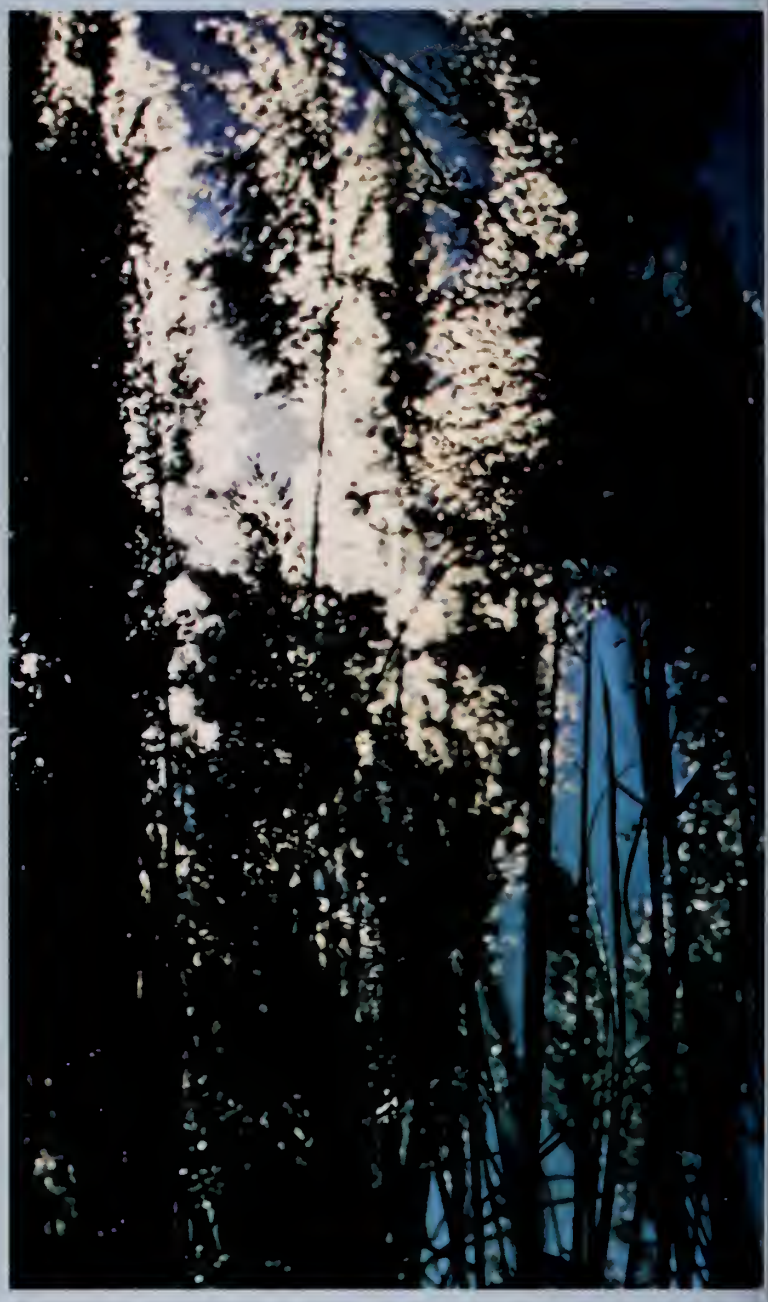
to peruse the uncrowded areas. Sea turtles and unusual varities of fish may appear to the amazement of the winter beachcomer.

Extensive erosion caused by the fierce, unending powers of wind and water can be readily seen on the beaches, especially following severe storms. The movement of dune areas and the successes and failures of beach grasses can be examined. The long root systems of these grasses may have only a tenuous hold on the fragile beach soil and there is often a valiant struggle by beach plants to re-establish themselves after the summer season traffic has subsided.

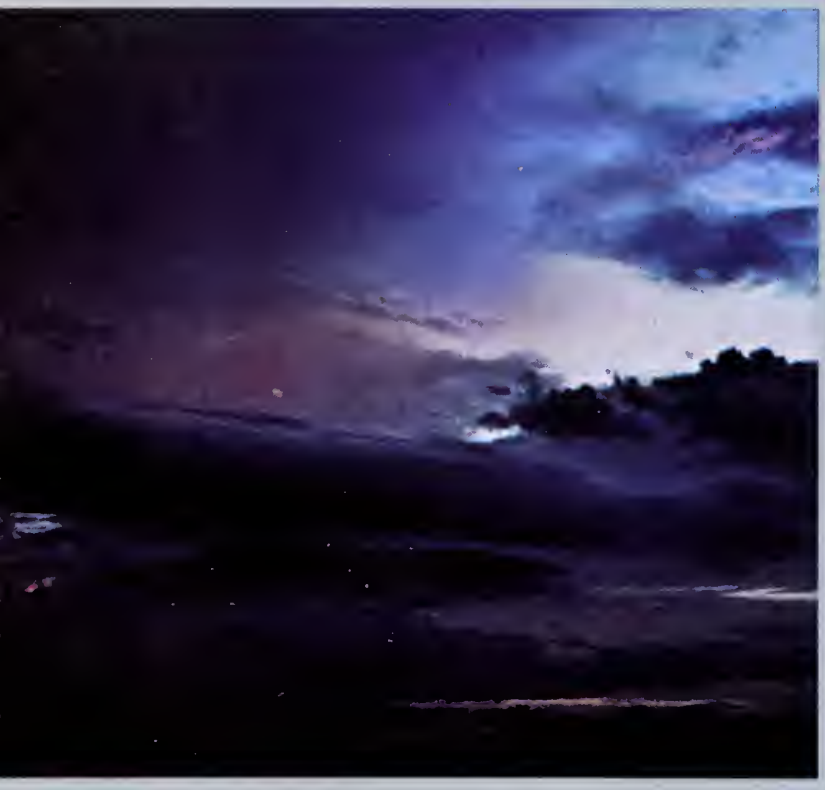
The protection of Virginia's shoreline cannot be overstated, for rebuilding is difficult. Great differences can be seen from year to year in both the size and configuration of the beach. The off-season beachwatcher may want to make a personal study of the progression of changes in a given area.

As for the wildlife, there is enormous variety in winter, just as in other seasons. There will be last year's dead plants, many with dry seedy heads growing among dunes or in fresh and salt water marshes adjacent to the beach. There are all sizes and the colors are often rich tans, browns and golds. There are also those plants which retain their green color throughout the winter and give a hint of the spring to come.

Animals of the winter beach include foxes, rabbits, raccoons, deer and mice, but most probably only their tracks and droppings will give evidence of their presence. Early morning hours offer



Sea grass (above) and the winter sky are both part of the winter beach scene.



the best chance to catch glimpses of wary mammals.

The bird life is generally abundant even in especially inhospitable weather. Often, in fact, the best views are in cloudy, cold or otherwise foul weather, since birds head for protected areas. Waterfowl can be seen riding icy waves, flying low over surf or through frigid sea spray. There are gulls, loons, grebes, and such diving ducks as canvasbacks, mergansers, redheads, ruddy ducks, goldeneye, bufflehead, scaup, scoters and more. Geese and swans are a picturesque addition to the seascape. The fish life is ever present and these birds are well adapted to take advantage of numerous food sources, even in the dead of winter. Underwater roots as well as crabs, barnacles, shellfish and other crustacea that thrive just yards off the beach, provide the mainstay of waterfowl diet.

There are winter beach birds to be seen that are not waterbirds per se and these, too, add to the enjoyment of the excursion. Such birds as ruddy turnstones, water pipits, horned larks, snow buntings, sparrows, blackbirds and crows are the more familiar cold weather beach lovers. Rocky beach areas may harbor purple sandpipers, which can be almost invisible when not in motion. Marshy beach peripheries may yield an occasional glimpse, or the raucous sounds of elusive bitterns and rails.

Aside from the wildlife, itself, one can also enjoy the total feeling of the beach environment in winter. There is a pleasant harmony and simplicity to the shore. The beach simply ends, the water simply begins. One can take the time to relax and reflect. The off-season quiet lands itself to the pleasure, of seeing, feeling, and hearing what is around us in a different way.

Tips for Attractive Trophies

Photo by Bid Wall

Following these in-the-field steps will help make sure you get a trophy worth showing.

by Stephanie S. Slahor

Hunters are not, by and large, wasteful folks. Bagged game usually ends up in the stew pot, or the family freezer. But with some game, you might want to preserve more than just the meat.

There are some tips that can help you to make your taxidermical mount of the game animal one of attractiveness and drama. These tips are easy to remember and easy to follow when you are field dressing your animal.

Birds. After shooting and retrieving the animal, try to keep it as clean and dry as possible protected from dirt and blood. This is important to preserving a "life like" trophy mount.

Upon your return to base camp, you can keep the bird's feathers flat and smooth by putting it head first into a cone made of newspapers, cardboard, construction paper, or similar substance.

Be sure to keep all tags or special stamps, or permits with the animal because most taxidermists will need such information.

Try to get the bird in to the taxidermist as soon as possible. Do not use plastic bagging or wrapping around the animal unless you are ready to put it in the freezer.

Prices vary according to what section of the country you're in and size of the bird and, of course, the quality of the work done. Generally you can expect to pay anywhere from $15 to $100 — more for open wing mounts.

Small and Big Game. Small game mounts tend to run about $40 to $60, and big game from $100 to over $1,000 depending of course on the animal and what is desired by the client.

First step is to be sure that you have made a kill. Especially with big game, approach the animal with your gun at the ready in case another shot is needed. Don't cut its throat!

After you have begun the field dressing of the animal, you must think ahead to preserving the hide in the best possible way. Pull the hide over the neck like a sweater without cutting it and sever the skull from the inside. The hide must be scraped free of all large chunks of fat and flesh. Salt the hide liberally. Do not roll the hide until it is completely cooled out. Instead, dry it out in shade. You don't need to peg or stretch it, but it does help if you can hang it over a rail or horizontal bar of some sort. As with birds, do not place the hide in a plastic bag or wrap.

A life sized mount of the animal can be one of your nicest remembrances of a successful hunt so be careful with that hide.

Now, if you are interested in making a rug of your bagged game, follow the same instructions given above for care of the hide, but decide whether you want to include the head as part of the rug. If so, follow the same instructions with the head area of the hide. (Additionally, the taxidermist will need to know whether you want a decorative border or lining with the rug.)

If you are planning to make a trophy head only, costs run from about $40 to $400. Remember to leave more than enough when you are skinning the cape (neck and shoulder regions). Better yet leave the whole hide attached and let the taxidermist cut it off. If you must leave the skull behind, cutting a line with a Y at both ends is what you should keep in mind. The top Y runs from each antler-cut and meets at the area between the antlers, then the straight cut runs down the back of the neck to between the shoulders. Then leave plenty of "Y" at the base of the line at the shoulders and brisket. The taxidermist will remove what isn't needed, so provide some working leeway.

Horns or antlers and feet may also want to be preserved by you for gun racks, hat racks or other decor. Such items run about $10 to $50.

Lastly, you may want to consider tanning the hide if you want your own leather or decorative "throw" for couches, etc. Decide whether you want the hide tanned with the hair on or off. Costs run about $1.25 per square foot and up.

Take your time with field dressing, and use care when preserving the hide. That way you can have a great trophy!

Personalities

By Francis N. Satterlee

Jack M. Hoffman

Chief, Fish Division Commission of Game and Inland Fisheries

Being lucky enough to have been born and raised in Cape Girardeau, Missouri has always been one of his "blessings in life," according to Jack Hoffman, for it was a fairly small town with the typical advantages of that type of community; it was located on the Mississippi River and there was lots of open space for roaming and exploring. His father was an avid bird hunter and fisherman who, when Jack was a mere lad, began teaching him about hunting and the piscatorial art. Added to that aspect of maturing was the fact that he grew up with a group of boys all of whom spent most of their free time in the outdoors hiking, camping and, during the seasons, hunting and fishing.

Summers, after school and on weekends Jack worked for his father in the soft drink bottling business. But he recalls that "there was always ample time to hunt and fish during the open season, plus in Missouri we could hunt on Sunday as well and that allowed me to spend many memorable hours in the field."

After Jack gruaduated from Cape Girardeau's Central High School, he attended South Eastern State College (in that community) where he majored in Biology and Agriculture. This phase of his education was interrupted by WW II and from 1942 through 1945 he served in the Army Air Force, mostly in Europe.

Following his discharge in 1945 he returned to Missouri and the bottling business. He also finished a B.S. Degree at S.E. State College. Next he attended the University of Missouri at Columbia where he received a Masters Degree in Fisheries and Wildlife. In 1955 he was employed by the Virginia Game Commission as a District Fish Biologist and was assigned to Roanoke. At that time there were only two fish biologists employed by the Commission. Over the years this number has expanded to where, at the present time, there are twelve.

In December of 1966 Jack Hoffman was appointed Chief of the Fish Division. In that capacity he derives great satisfaction from the success his Division has had in continuing to improve the fishing opportunities for the sportsmen and women of the Commonwealth. Some exciting and innovative developments are currently in the planning stages for the Virginia fisheries. These include, but are not limited to, a revamping of the entire trout program, which will encompass, among other things, a detailed reclassification of the trout streams in the Commonwealth. Jack feels that these developments and the continuing application of expanding expertise in modern fisheries science are helping his Division to protect and maintain the renewable fisheries resource in the Old Dominion.

Jack and his wife, the former Mimi Jenkins of Cape Girardeau, have one married daughter and they make their home in Henrico County.

Growing Up Outdoors

By Sandy Coleman

The Bobcat

In the pioneer days just about the highest compliment that you could pay a man was to call him a "wildcat." Calamity Jane and her crew were known as wildcats. A good fighter was said to be able to defeat "his weight in wildcats."

The bobcat, night wanderer that he is, still roams the lands in Virginia, but most of us would never know it. He is stealthy and does everything he can to avoid contact with humans. Most of the time he is successful.

The bobcat is the smallest of the cat family found in North America. He usually weighs between 15 and 25 pounds. His coloring varies with the time of the year, but his appearance is distinctive enough to make sure that you are always able to recognize a bobcat. His fur is a tawny brown with gray highlights. Gray is very noticeable along the back as it tips the brown fur. The head is a darker gray-brown marked with strong black lines, though this is not always found on the bobcat. The legs have black bars of spots that are very easy to see. The chin and neck are also edged in black.

One of the bobcat's most distinctive features is his ears. They are light colored on the front and inside. The back of the ears are edged with a white interior. The black edge on top forms a tuft of hair that aids the bobcat's hearing. The ruff extending from the ear to the neck makes the bobcat appear larger than he really is.

The short "bobbed" tail is black-striped on top with white at the tip and on the underside. There are two theories as to how the bobcat got his name: one theory is the bobbed tail and another is the bobbing motion of the cat when running. Either explanation is equally likely.

Bobcats usually roam alone and almost always at night. He eats small animals, such as rabbits and squirrels. He will also feed on birds, such as quail and grouse.

Illustration by Dick Bernard

The young of the bobcat can reportedly be born just about any time of year, although it is most common for them to arrive in spring. In some states, bobcats have had up to six young at one time, but it is more likely that a litter will consist of three or four. They are born in a den that provides much protection until they are ready to venture out into the world. Like most cats, they are born with their eyes closed, and it usually takes about three weeks for the kittens to open them. They will stay with their mother at least until the autumn, or maybe even into the next year.

In Virginia, bobcats are found in the mountainous areas of the Piedmont, on into the flat lands and are thought to exist even in some parts of Tidewater. Across the United States, their range extends over all parts of the country, into southern Canada and even into Mexico.

It Appears to Me

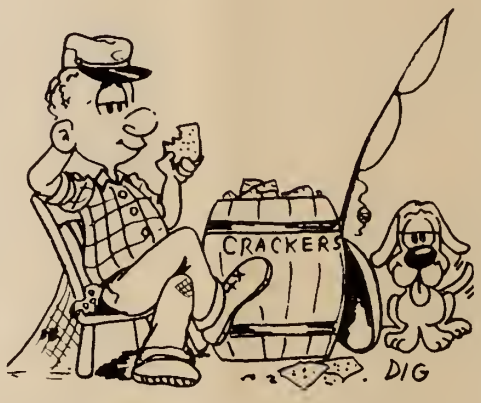
By Curly

. . . A PERSON OUGHT TO HAVE ONE

Attention, teachers and anyone who shares an interest in telling the story of forestry. The American Forest Institute has produced an updated *Guide to Educational Materials* which lists such things as games, filmstrips, charts and other teaching aids produced by industry and related organizations. Free copies are available from the American Forest Institute, 1619 Massachusetts Ave., N.W., Washington, D.C 20036.

For those of you who are really concerned about clean water, as we all ought to be, the Water Resources Division of the Heritage Conservation and Recreation Service has just released five booklets on the subject, all are free: "Recreation Benefits From Clean Water," "What About Clean Water Recreation No. 1" and "What About Clean Water Recreation No. 2." The fourth booklet was jointly produced by EOA and HCRS. It is titled "Recreation and Land Use: The Public Benefits of Clean Water." The fifth is "Water Clean-Up & Recreation — Making It Work For People." All of the above are available cost free from the Water Resources Division, Heritage Conservation & Recreation Service, 440 G Street, N.W., Room 312, Washington D.C. 20243.

Fuel prices being what they are, and regretably what is forecast for the near future, it would pay to take heed to what is available from the Virginia Home Energy Cost-Cutting Clinc. The item which they provide free of charge is freshly updated and crammed with valuable information. "Do It Yourself"



is the title of the packet, which includes the Honest Sam Instant Analyzer, an energy cost-cutting calculator, a questionnaire, an 80-page guide for home-owners and fresh information on furnace efficiency, solar water heaters and wood stoves. To obtain this gem, write to: Virginia Department of Energy, (Division C), 310 Turner Road, Richmond, Virginia 23225 or call toll free 1-800-552-3831.

It's a first for the Old Dominion and should, without a doubt, prove to be popular with folks not only in Virginia but those who reside outside the Commonwealth as well. "A Guide to the Virginia Estate Wineries and Their Wines" is a booklet which was produced and published by the Virginia Department of Agriculture and Consumer Services, Division of Markets in cooperation with the Virginia Estate Wineries. The guide contains a listing of the Estate Wineries, a history of Virginia Viticulture, wine tips, a glossary and even a map. All things considered, this publication should prove to be a *best seller*. . .but it won't because it's free for the asking from Department of Agriculture and Consumer Services, Division of Markets, 203 North Governor St., Richmond, Va. 23219.

. . . FOR YOUR BOOKSHELF

Over the past few years a large number of books have been published which speak to the subject of old time crafts and the like. An example would be the Fox Fire series. These and other similar efforts are excellent. However, just off the press and available is a real dandy which sort of puts the whole kit and kaboodle into perspective. A feller named William M. Harlow, who goes by the name of "Moosewood," has authored *Ways of The Woods, A Guide to the Skills and Spirit of the Woodland Experience*. No newcomer to the business, Harlow is the co-author of the Textbook on Dendrology which is so familiar to foresters. *Ways of the Woods*, is 144 pages of proof that old woodcraft is alive and well and Moosewood tells how it is best done or where a body can get the pertinent information or instructions. Priced at $8.50, it's available from the American Forestry Association, 1319 18th St. N.W., Washington, D.C. 20036.

. . . AND THEN

Lottie Davidson, a reader of ours from Scotland, passed some information on to me not long ago and I hasten to share it with you. My bride and I have a mantle clock that we picked up on our honeymoon. It ran for years and then stopped. Lottie suggested that we soak a small cloth in paraffin oil (kerosene), place it in an appropriate container and let the fumes permeate the inside of the case, works and all. Never has the clock ticked-tocked nor chimed as well as it does now. A tip of the old Tam to ye, Lottie!

Misty Blue Mountains

by Barbara McEwan

Almost anyone looking at Sharp Top Mountain would guess it's the tallest peak along the mid section of the Blue Ridge of Virginia. Its pointed tip leads the eye up and it certainly gives the appearance of massiveness. It has fooled generations of people. A plaque on top, noting that the peak was a famous observation point, further marks that Sharp Top had the honor of providing the Virginia stone in the Washington Monument. Its inscription bears witness to the misconception regarding the mountain's height: "From Otter's summit, Virginia's loftiest peak to crown a monument to Virginia's noblest son."

Nevertheless, its twin next door, Flat Top, measuring in at 4001′ is higher, despite its more rounded lines. (Sharp Top is only 3875′.) Neither of the Peaks of Otter, however, are as tall as Apple Orchard Mountain, 4224′ which lies but a short distance to the north. Even Apple Orchard is a pewee compared to Mt. Rogers at 5729′ farther southwest in the state. Obviously, much has been learned about mountain peaks since earlier days.

The Peaks of Otter rise above the Mons valley. From their heights the Big and Little Otter Rivers are born to flow ten miles or so before joining the James River to run eventually into the Atlantic. Presumably the Peaks were named after the rivers whose names in turn were due to the otters which inhabited them. As otters prefer large comparatively deep streams, their numbers were never large, but sufficiently noteworthy to provide a name.

Since Indian days the Peaks have been a prime recreational area. Pleasant summer temperatures plus an abundance of game provided ideal conditions for a secure food supply for the Indians. Squaws raised beans, maize and tobacco while their menfolk hunted deer, bear and wild turkey. Early settlers also benefited from nature's prodigality.

Today area residents and tourists picnic, hike and camp or utilize the rustic lodge next to the sparkling man made lake at the base of Sharp Top. They may also visit the building nearby believed to be the former Polly Woods Ordinary which operated until 1859. At the weather-board cabin travelers could secure the "ordinaries" of life: a place to rest the head plus a menu of turkey, bear steak, biscuits and buttermilk.

Earlier travelers would no doubt be amazed by the great numbers of people who visit the Parkway now. A paved road running the length of the Blue Ridge? A bus to the summit of Sharp Top? But a price has been paid for all this so-called progress. Buffalo no longer roam the area. Native elk were found until the Civil War era. Elk would later be

The view from Sharp Top is breath-taking.

restocked. The most recent evidence of survivors of this restocking in the area of the Peaks consisted of bones and tracks found in 1971-72 near milepost 67 on the Parkway. Logging was inevitable. Early settlers barely made a dent in the forest resource. Today few areas have escaped a systematic felling of trees.

But once the heavily used areas are left behind, the Peaks of Otter today still present as unspoiled conditions as most visitors are ever likely to see. As in any location, plant life is determined by the kind of rocks beneath, the elevation, exposure, latitude and precipitation. Once the plant life is established, the kind of animals present fall into place in a fairly routine manner.

To fully understand this flora and fauna, however, one must go back before pioneer days. Some 100,000,000 years or so ago jungle vegetation covered much of the world. Thick rain forests were found as far north as New York and London. In time this would change, especially when mountain ranges such as the Appalachians were formed (in their case 15,000,000 years ago). Glaciers would creep southward pushing northern vegetation before them. When the last glacier retreated, the northerners returned to their former haunts, but some of their numbers were left behind at the higher elevations or in favored coves.

The plants now sorted themselves out. What grew where depended to a large extent on the underlying soil. In the area around the Peaks, the native rock forming most of the Blue Ridge is diorite. At the peak of Sharp Top enormous boulders have been formed from these diorite rock masses through weathering processes which still go on. Any cracks which develop on the rock surfaces are quickly exploited by mosses, lichens, liverworts and ferns which in turn further the disintegration. Repeated freezing and thawing of accumulated moisture helps the process along. Tree seeds may find a toe hold and eventually a thin layer of soil forms.

Diorite contains the same minerals as granite but in different proportions. Diorite is poor in quartz but rich in feldspar and it also has a high percentage

Once a thriving Indian Settlement, the Peaks of Otter offer beauty and recreation to today's Virginians.

of hornblende. The latter gives diorite a blackish color. The feldspar forms a good fertile soil.

Between mileposts 80 and 81 just north of the Peaks one can look down into a swamp like the area where this rich soil combines with sufficient moisture to form a forest with a thick understory of catawba rhododendrun and laurel, an almost impenetrable thicket known as a "laurel hell." The Parkway passes through a portion of this mass of vegetation which is conspicuously dotted with tall hemlocks. It is notable how abruptly these hells begin and end. Surrrounding them for many miles are hardwoods which also grow there because of the rich soil.

South of the Peaks the rocks are composed largely of quartzite which forms a course infertile soil suitable mainly for pines and oaks. The pines found in the Peaks area are the white pine, usually at higher elevations, while the Virginia and pitch pines are found on the lower slopes. The other evergreens are eastern hemlock and red cedar. Of the oaks, there are the northern red, white, black, scarlet and chestnut, with the pignut hickory found on the drier sites.

On better sites are found the old time southerners: black gum, elm, white ash, yellow and sweet birch, black cherry, basswood, yellow poplar, black walnut, dogwood, red maple, black locust, sassafras. If this list sounds imposing, in the world of temperate forests it certainly is. Yet it does not represent all of the hardwoods present. It does give an idea of the diversity of the ancient forest which covered these parts. Farther south in the Smokies this forest type reaches its optimum diversity with over 100 species represented. Only tropical rain forests have more.

The Peaks of Otter, nevertheless, present a sufficient wealth of plant and animal life to keep any outdoor person busy tabulating what grows and lives there. In spring, summer and fall herbaceous plants do their thing while a multitude of birds and other wildlife go about their business. Life slows down in the winter, but a close observer will find plenty of interest. A ruffed grouse flushes, holes of the pileated woodpecker provide evidence of its presence. Dutchman's pipe with its thick woody vine-trunk climbs over head. A raven croaks. All these and their neighbors were present back in Indian days. May they survive for future generations to enjoy, as well.

What in the World is a Thunderpumper?

by Henry Fischer

The American bittern's unique voice and appearance make him an oddity among Virginia's bird population.

When warm summer evenings come to Virginia's lakes and wetlands, many familiar voices can be heard: the bass notes of a bullfrog warming up for an evening's performance; the twittering and whistling of purple martins as they swoop and dive upon unsuspecting insects; the *konk-la-reee* of a redwing blackbird as he proclaims the limits of his domain before going to bed for the evening. All of these common marsh noises serve but as a prelude for the most unusual vocalist of the evening, the American bittern *(Botaurus lentiginosus)*, or as he is commonly nicknamed, the "thunderpumper." A member of the heron family, his *oong-ka-choonk---oong-ka-choonk* resounds throughout the evening sky, creating a noise that is most unbirdlike. Many people liken the *ka* note of the bittern's call to the sound of a stake being pounded into wet ground; others compare it to the sound a hand pump makes when being primed. The bittern's "pumping," which serves both as a warning to rivals and a mating call, is caused by ingesting large quantities of air and subsequently ejecting it in large gulps. The result is a most peculiar sound which many people have no doubt heard without realizing the source.

The American bittern, though widely distributed throughout Virginia and North America, is a bird with which many people are not familiar. This chunky brown heron, most readily recognized by its black wing tips, is a bird that is both secretive and seclusive. Like other members of the heron fam-

Photo by Spike Knuth

ily, the bittern's habitat consists of lakes, rivers, or any marshy area. Unlike most other members of the heron family, the bittern does not form colonies, and thus is never seen in large numbers. Rather, this denizen of the cattails and marsh grasses lives a solitary existence except for the mating period. Another reason why the bittern is not commonly observed is that he is a master of camouflage. Upon the approach of a predator or man, the thunderpumper points his bill skyward, displaying his vertically striped brown-and-tan chest. Remaining motionless, the bittern most effectively blends in with the surrounding reeds and vegetation. Curiously enough, the bittern's yellow eyes are set so low on his head that he can easily observe the approach of whatever it is that has alarmed him.

Once while on an outing with my long-time birding and fishing companion, D.R. Mueller, I had the rare fortune of spotting a bittern before he sighted me. The bittern displayed typical heron hunting position; that is, a low, crouching profile with his bill only a few inches off the ground. His progress was painfully slow , lifting only one leg at a time and never splashing. Upon our closer approach, the bittern went into his "sun-gazing" routine, pointing his bill into the air. Many bird watchers have reported that if the wind is blowing while the bittern is in this position, he will sway back and forth so as to simulate the movement of the reeds. When we approach within 10 feet or so of the stationary bittern, he suddenly jumped clumsily into the air, emitting a loud squawk. Pulling his neck in and letting his legs trail behind in typical heron fashion, he flew only a short distance before setting into the reeds again.

The American bittern is a medium-sized heron 26-28 inches long with a 36-48 inch wingspan. Among his favorite foods are crayfish, frogs and small fish. He impales these small creatures on his dagger-like beak before swallowing them whole. So strong is the bittern's 3-inch bill that it one time served as a source of arrowheads for various Indian tribes. The bittern usually constructs a well-concealed reed nest deep in the cattails, out of the sight of such predators as hawks, mink or water snakes. Three to seven eggs are usually laid, these hatching in less than a month. In only a few weeks the young bitterns learn the "freezing" act which will afford them protection throughout their lives. The best time of year to locate the bittern is no doubt late spring and summer, for this is when the thunderpumper emits his peculiar call. It is like no other.

Outdoor Notebook

Annual Duck Stamp Contest

Wildlife artists from every state in the Union entered a dramatically increased number of renderings in the Annual Duck Stamp Art Contest held at the Department of the Interior in Washington Thursday, November 8, 1979. Winner in the contest in which 1,329 pieces of art competed for the honor of becoming the 1980-81 Duck Stamp was Richard W. Plasschaert from Waseca, Minnesota. The rendering of Mallards was chosen over the others in the stiffest competition in the 30 year long history of the contest. Second Place winner, also a Minnesotan, was David A. Mass of Waterville, with "Pintails."

During the 1978 contest 374 competed in comparison to the more than 1,300 who submitted entries this year. The tremendous increase was attributed to the extensive press coverage given the 1978 contest plus related and subsequent articles in a number of national magazines.

U.S. Fish and Wildlife Service Director Lynn A. Greenwalt officially opened the contest. He stated that "a dramatic increase in the number of entries was indicative of the abiding interest and faith that our nation has in wildlife and waterfowl." In announcing the names of the five judges who had the responsibility for the selection of the winner, Greenwalt thanked them for participating but stated that "he did not envy them the task before them in view of the extremely large number and quality of the art." The judges, all of whom are prominent artists, conservationists and ornithologists included the following: George Harrison, who at one time was employed by the Virginia Commission of Game and Inland Fisheries. Harrison is now associated with the National Wildlife Federation and is a well known editor, photographer and author; John Madson, Assistant Conservation Director, Olin Corporation, East Alton, Ill.; Dr. Robert Meeks, Manager, Winous Point Shooting Club, Port Clinton, Ohio; Betty Crystal, Chairman, Womens Membership Division of Ducks Unlimited, and Jim Phillips from *Outdoor Life* magazine.

Prior to 1949 wildlife artists were commissioned to provide the design for the annual stamp. For the past 29 years, the design has been chosen by a contest open to all artists who are residents of the United States. The prestige of winning the contest has enhanced the reputations of established artists and has elevated otherwise unknown artists to public acclaim. The winner's financial reward is also significant. The Federal Government offers no prize in this, the only contest which they sponsor, but commercial wildlife art dealers are eager to market limited edition reprints of the winner. Funds from Duck Stamp sales are used by the Interior Department's U.S. Fish and Wildlife Service to acquire land for migratory bird refuges and waterfowl production areas. Since 1934 more than 75 million Duck Stamps have been sold providing over 210 million dollars in revenue and purchasing more than 2.3 million acres of waterfowl habitat.

To select each year's design the Fish and Wildlife Service conduct an annual contest open to all interested artists for the next year's Duck Stamp. Details on the contest are announced in midsummer and all entries must be postmarked not later than October 15th of that year. Rules for the contest are available from Public Affairs, U.S. Fish and Wildlife Service, Washington, D.C. 20240

1979 Virginia Wildlife Federation Awards Winners

Kit Shaffer, Supervising Game Biologist, is presented with the most coveted award of the evening, The Governor's Award by Scroggin and Ware.

Charles Chappell, a Game Warden with the Commission, won the Water Conservationist Award.

Game Commission Biologist Charles Peery, III (center) is presented with the Wildlife Conservationist Award of the Year awarded by National Wildlife Federation President Dr. Fred Scroggin (left) and Clyde Ware, Director of Community Affairs, Sears, Roebuck and Co. (right)

Jim Kerrick, Safety Officer of the Virginia Game Commission was awarded the Hunter Education Man and Boy Award.

On October 27, 1979 the Virginia Wildlife Federation Awards Banquet was held and this year's winners of the coveted awards were presented with their trophies.

Below is a list of the major winners, along with photos of the employees of the Virginia Game Commission who were honored this year by the Virginia Wildlife Federation:

Legislative Conservationist of the Year — Sen. Joseph T. Fitzpatrick
Conservation Educator of the Year — Rosmary Hitch
Conservation Organization of the Year — Friends of the Lynchburg Stream Valleys
Randy Carter Conservationist of the Year — Jack Albert
Youth Conservationist of the Year — Delores Mae Adams
Clean Air Conservationist of the Year — Axel T. Mattson
Affiliate of the Year Award — Virginia Wild Turkey Federation
President's Awards — Chuck Traub, Cliff Golden, Pete Bromley

Binders on Sale

What's the best way to keep *Virginia Wildlife* in its place?

The *Virginia Wildlife* Binder is the perfect solution to your storage problem.

These sturdy vinyl binders with a gold *Virginia Wildlife* logo are an attractive and practical way to keep your magazines. Each binder holds 12 issues, a full year's worth of *Virginia Wildlife*. . . and with easy-to-use index in the December issue, you have at your fingertips the information found in the magazine for an entire year.

Send your check for $4.50 (payable to Treasurer of Virginia) to: *Virginia Wildlife* Binders, P.O. Box 11104, Richmond, Virginia 23230.

It's the best way to keep 1979 *Virginia Wildlife* magazines where you want them.

Transactions Available

PROCEEDINGS 1978 VIRGINIA SYMPOSIUM ON ENDANGERED AND THREATENED PLANTS AND ANIMALS, referred to in the article 'Wanted Alive', will be published late January 1980 and may be purchased from: Sea Grant at Virginia Tech, SPREV, P.O. Box 369, 102 South King Street, Hampton, Va. 23669 or Sea Grant at Virginia Tech, Food Science Building, VPI&SU, Blacksburg, Va. 24061 at $12.00 per copy. Make checks payable to VPI&SU — Sea Grant.

Virginia Wildlife Window

As a reader of *Virginia Wildlife*, you are well aware of the attractive wildlife art found on the cover. At one time or another, you may have toyed with the idea of framing and hanging some of the works. While a conventional 8 x 10 photo frame would suffice for the display of one piece of work, a single mounting is just that one only. If you have several favorites — and the odds are you do — there is a unique and unified way by which they may be displayed. Retrieve those past issues you have stored away, select six of your favorites and get set to make your own *Virginia Wildlife* Window.

Once you have decided on the six prints you are going to use, carefully remove the covers. Cut off the magazine's logo or name, so the resultant cover measures 8¼ x 9½ inches.

Locate a piece of masonite or plywood on which the prints will be mounted. To make a six-pane window, the backing should measure 16½ x 28½ inches.

You are now ready to mount the prints. There are two equally acceptable methods of affixing the covers to the backing material.

One is to use a dry mounting tissue paper similar to the adhesive used on T-shirt transfers. The other alternative is rubber cement. Either may be obtained at most any photographic store or supply house.

A word or two of caution. Different types of dry-mounting tissue may have different melting points. Test the adhesiveness of the one you select by mounting the same weight paper to a piece of the material used for the backing. When tacking the tissue to the print and mounting the print to the backing, use a piece of wax paper to protect the face of the iron and the surface of the print.

If you opt to use rubber cement, remember it must be spread evenly on the print or air pockets will occur. The formation of such pockets can be prevented by rolling the newly mounted print with a rolling pin or similar item. Roll both up and down, as well as across the print. Any excess cement that might get on the print can easily be removed with a dry cloth. After the prints have been cemented, weight the entire surface of the window and allow it to dry. No drying time is required if the tissue paper is used.

Before framing, some precaution should be taken to protect the prints and insure their longevity. This can be accomplished by spraying the surface with a clear acrylic spray or a similar fixative available where artist supplies are sold.

After framing and attaching the crosspieces, your window will be a welcome addition to most walls. Since it is always daylight outside this window; it will provide you with a constant view of your favorite Old Dominion wildlife.—*Sam Skeen*

Virginia Wildlife

BY SUBSCRIBING TO VIRGINIA WILDLIFE, YOU SAVE 50% OFF THE NEWSSTAND PRICE! SEND YOUR CHECK OR MONEY ORDER TO:

Virginia Wildlife
P.O. Box 11104
Richmond, Virginia 23230

$5.00 FOR 1 YEAR OR $12.50 FOR 3 YEARS

Name _____ New _____

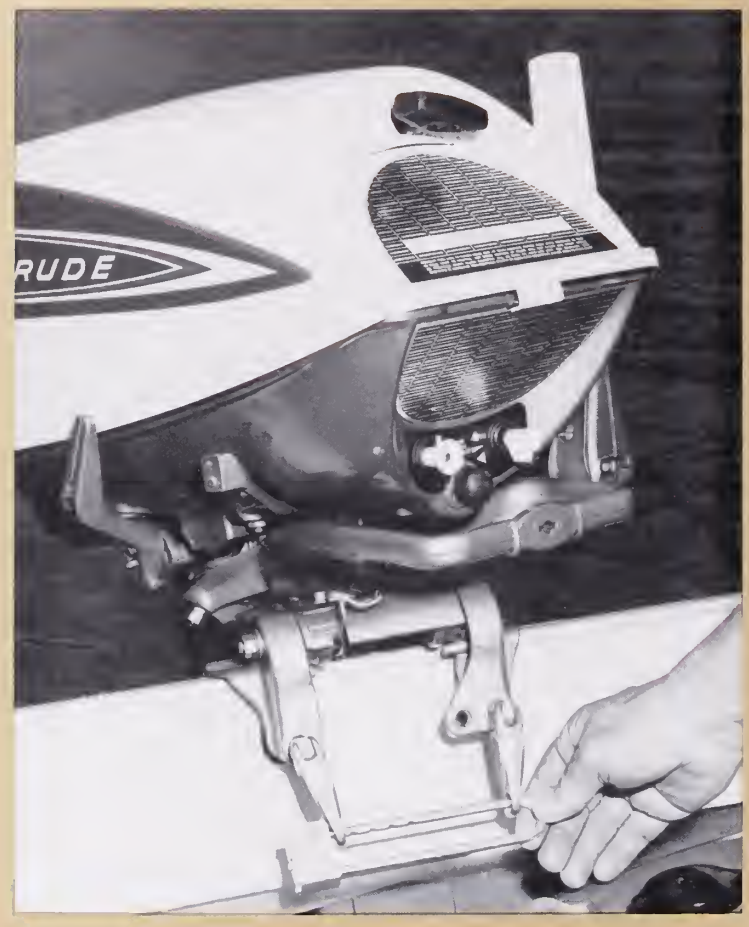
Address _____ Renewal _____

City _____ State _____ Zip _____

Allow 6-8 weeks for delivery. Credit Warden No. _____

On the Waterfront

Edited by Capt. James N. Kerrick



Foil Outboard Thieves — Here's How

Right this minute, cunning thieves could be plotting to steal your outboard motor.

Outboards, large and small, are tempting merchandise because most states don't require a title. Within hours after the theft, it's likely your outboard will have been transported 200 or so miles to a big city and "fenced."

Most outboard thefts can be prevented. And, if that fails, there are ways to help the authorities catch the crooks and send them up for grand larceny.

Here are some precautions you can take.

Write down the model number and serial number. File it. If you own a Johnson, even if you're not the first owner, secure a yellow registration card from a Johnson Outboards dealership and join Johnson's pre-owner registration program. The company will keep your name and motor data on file in case your motor is stolen.

Next, put your own special identification mark —your initials or social security number for instance — on a hidden part of the motor, someplace known only to you. Diamond-tipped identification pens are helpful for this. Most police departments will loan you one for the purpose.

If your outboard is portable, remove it from the boat when you're not using it, and lock it away in your home.

Buy a heavy duty chain, the type used often to secure motorcycles to immovable objects, and secure the motor to the boat.

Long padlocks are available commercially to join the clamp handles on the small outboard. Buy one and use it.

Obtain a thin cable, paint it black, and secure the boat to the motor, hide the cable under the outboard brackets. This will slow up and definitely frustrate any thief expecting to make a quick getaway.

If you own an electric start outboard, install a car burglar alarm.

When you're boating, keep an eye open for suspicious circumstances. Report irregularities to the local gendarmes.

When an outboard has been stolen, or an attempt has been made, secure the area until the police arrive so as not to destroy footprints, fingerprints, pry marks, etc.

If your stolen outboard was a Johnson, a local dealer will see that the model and serial number becomes part of the manufacturer's updated list of stolen motors, sent monthly to Johnson dealers, insurance companies, and law enforcement agencies all over the country.

The Bad Guy in Virginia's Forests

White pine blister rust is a disease that can deplete our forest reserves.

by Dennis Andeson

photo courtesy of Virginia Division of Forestry

The complexities of creation often escape notice of most people. Such is the case with white pine blister rust. Many individuals have seen the effects or the host plants but have not taken notice.

White pine blister rust is a disease which is caused by a fungus *(Cronartium ribicola)* which attacks white pine by producing a canker that looks like a blister. Thus, the name white pine blister rust. This fungus enters through the needles and grows through the stem and finally reaches the main bole. The needles and branches are killed by girdling from the fungus-produced canker. When the disease reaches the main trunk, the canker will kill the entire tree. This blister or canker is easily identified by a burn or scorched appearance along with sap from the tree. A few years after infection, a bright yellow mass is evident as the spores are produced for infection of the currant bush, thus continuing the cycle, from pine to ribes to pine.

This fungus has some very interesting characteristics. First this disease requires for its survival two plants, the Eastern white pine *(Pinus strobus)* and a certain species of the Ribes genus — current. Most references to the blister rust will mention besides white pine, currants and gooseberries. However, the gooseberry referred to is not the true gooseberry, but only a wild form of the domestic currant. Without these two plants the disease cannot complete its life cycle.

Spores produced by the fungus require exact climactic conditions for dispersal and germination. This need is so dependent on weather, mainly temperature, high humidity (fog), and wind, that the disease is restricted topographically by climate conditions. In other words, blister rust is only a problem in areas above 2,500 feet in elevation, the increased incidence of the fungus. This requirement has created severe rust problems only in three counties in Virginia: Alleghany, Bath and Grayson. The disease is so fatal and prevalent in Alleghany and Bath that most reforestation work uses red pine *(Pinus resinosa)* in lieu of white pine. This blister rust is a real threat in all the areas in Virginia above 2,500 feet in elevation, but just not as common as the mentioned counties.

Another interesting facet is the distances this fungus will travel. When in the life stage present on currents, spores can only travel 600 to 900 feet while the stage that is present on white pine produces spores which can infect ribes up to one hundred miles.

White pine blister rust is not a new thing. Up until seven years ago there were men who worked on both private and public land removing currant bushes. These eradication crews began in the early part of this century. Their work involved mapping each square mile in hazard areas and marking each ribes bush and infected white pine tree. The currant and gooseberry bushes were grubbed out and salt poured in the hole. The following year they would check each spot as well as look for new plants. The more recent crews used spray instead of a madock but the procedure was the same. The U.S. Forest Service stopped funding these crews about seven years ago.

Recent investigations by the Virginia Division of Forestry has revealed that the wild currants are spreading. This is due to the termination of the eradication crews and increased forestry operations. Ribes seed will lay dormant for many years, so when a timber cutting, prescribed burning or bulldozing operation comes along the seed respond and germinate. These plants can live right under white pine as long as the fungus is not present. However, in those counties of high elevation and considerable white pine numbers, the stage seems to be set for an outbreak of blister rust.

JOHN W. TAYLOR

Bird of the Month

by John W. Taylor

The Pine Grosbeak

A robust, hardy species, the pine grosbeak lives for much of the year in the northern forests that fringe the arctic tundra. Circumpolar, it ranges across Siberia, Scandinavia and boreal North America, moving to the south only when driven there by scarcity of food. Even then, it seldom descends beyond New England and, in the west, the southern Rockies.

So this grosbeak is only a casual and irregular visitor to Virginia. It has been noted but once on the coastal plain (in Alexandria, 1964) and but a few times east of the Blue Ridge. To the west, in the mountains, it comes more often, but even there it is a rare and special find.

Pity that it does not visit more often. For the bird is strikingly handsome, both in bearing and plumage. The feathers of the head, back and rump are suffused with rose-red, upon a ground of soft grayish-blue. The breast, too, is rose-red, merging to gray on the flanks and belly. The wings are brown, the primaries edged with red, the secondaries with white. Two wing-bars are formed by the white tips of the coverts. In the female, the red is replaced by an almost golden apple-yellow.

The effect of these pastel-like hues is enhanced when contrasted against a snowy back-drop. Just such a scenario is graphically described by William Brewster, writing about the birds in Massachusetts:

"When I first saw them, they were assembling in a large white ash. The tree was loaded with fruit, and with snow clinging to the fruit clusters and to every twig. In a few minutes it supported over a hundred grosbeaks which began shelling out and swallowing the seeds, the rejected wings of which, floating down in showers, soon gave the surface of the snow beneath a light brownish tinge. The snow clinging to the twigs and branches was also quickly dislodged by the movements of the active, heavy birds and for the first few moments it was flashing out in puffs like steam from a dozen different points. The finer particles, sifting slowly down, filled the still air and enveloped the entire tree in a veil-like mist of incredible delicacy and beauty, tinted, where the sunbeams pierced it, with rose, salmon and orange, elsewhere of a soft dead white — truly a fitting drapery for this winter picture, the hardy grosbeaks at their morning meal."

As noted by Brewster, the pine grosbeak is addicted to the winged seeds of the ash tree. Other observers have noticed a fondness for the seeds of hemlock and jack-pine and for the berries of the sumac and the mountain ash. The buds of the larch and maple are prized in season, as are the hanging catkins of the birch. During the warmer months, the birds hunt for insects and larvae, the young being fed almost exclusively on such a diet.

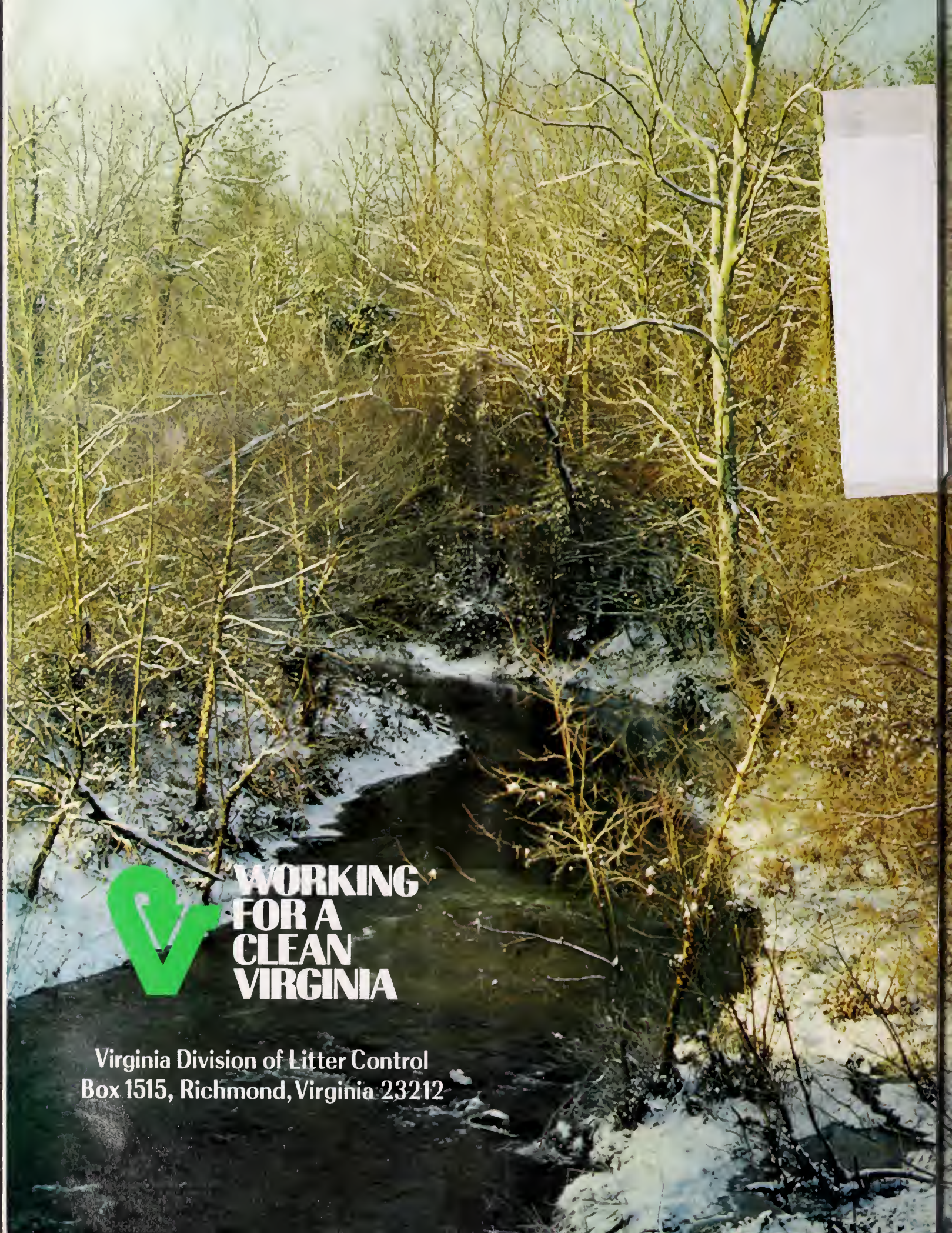
Those who heard its song describe it variously. To some it is flute-like, more suggestive of a thrush than of a finch. Others have noticed a mysterious ventriloqial quality. It usually consists of several loud rich notes, followed by a series of trills, with an occasional harsh twanging note.

The call-notes are bright and musical. One call, most frequently given, is a whistled *tee-tee-tew*, suggesting a yellowlegs. The alarm note is a tingling *chee-vie*.

These grosbeaks are exceptionally tame and confiding, perhaps because they have little contact with man in the solitude of the northern forests. They show little concern at human intrusion, continuing about their business within a few yards of the onlooker. In Scandinavia, this indifference to man has earned for the pine grosbeak a reputation for stupidity, expressed in the vernacular by such names as "Dumsnut" and Dumskalle." Other names in common usage refer to the parrot-like appearance and actions of the bird.

The nest of the pine grosbeak is quite unlike that of any other. The outer part of the large, flat structure is a basket work of pliant twigs, which have been carefully nipped from the tree by the builder, rather than found at random. The inner cup is woven from finer material, often including the hair of animals.

Three or four eggs constitute the normal clutch. They are deep, greenish-blue, blotched and spotted boldly with dark brownish purple.



Virginia Division of Litter Control
Box 1515, Richmond, Virginia 23212